

THE CONTRIBUTIONS OF WILLIAM T. GILLIS  
(1933-79) TO THE FLORA OF THE BAHAMAS

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ABSTRACT

William T. Gillis (1933-79) became interested in the Bahama flora while conducting field research for his Ph.D. His interest intensified from 1968 to 1972 during his appointment as taxonomist and herbarium curator at the Fairchild Tropical Garden in Miami, Florida, U.S.A. He made many collecting trips to the Bahama Islands, and in 1970, in collaboration with Richard A. Howard of Harvard University and George R. Proctor of the Institute of Jamaica, proposed to revise *The Bahama Flora* that Britton and Millspaugh had published in 1920. Although their NSF proposal was not funded, Gillis continued his work on the Bahama flora, as a Mercer Research Fellow at Harvard University, then as a Visiting Assistant Professor at Hope College, Holland, Michigan, and finally as Assistant Professor at Michigan State University, East Lansing. His publications for revisions of *The Bahama Flora* appeared between 1973 and 1977. Gillis' death in 1979, at the age of 45, prevented his completion of this valuable contribution to Bahamian natural history. A comprehensive summary of his contributions to the study of the Bahama flora is presented.

Key Words: William T. Gillis, The Bahama Flora, Natural History of the Bahamas

INTRODUCTION

*The Bahama Flora*, the first complete flora of the Bahamas, was published in 1920 by Britton and Millspaugh. In their section "Exploration and Collections," they reported all known publications and botanical collections made from the early 1700's through 1911. In 1970, William T. Gillis, in collaboration with Richard A. Howard and George R. Proctor, proposed a revision of *The Bahama Flora*, and from 1973 until his death in 1979, Gillis published many contributions toward this goal.

In 1982, Correll and Correll published *Flora of the Bahama Archipelago*, a taxonomic work that systematically describes and illustrates the plants of the Bahamas. Although the Corrells credited various collectors and field workers, in their preface, they did not present an exhaustive list of publications and collections as did Britton and Millspaugh in *The Bahama Flora*. Also, the Correll's *Flora* lacked a comprehensive bibliography, an omission that came to our attention while we were preparing vegetation field guides for Andros (Nickrent et al., 1983) and San Salvador

(Kass, 1991) islands, Bahamas. The Correll's bibliography is "selective." Specifically, many of the publications of Gillis and collaborators, as well as those of other investigators (e.g., Lewis, 1971), were not cited.

William T. Gillis' contribution to the flora of the Bahamas has been neglected and not fully appreciated. This paper provides a comprehensive summary and interpretation of his studies of that flora.

#### PERSONAL LIFE AND EDUCATION

William Thomas Gillis, Jr. (1933–79, Figure 1) was born on 22 June 1933, at Perth Amboy, New Jersey. He received his B.A., with honors, from Rutgers University in 1955. His master's thesis project was an ecological study of seed germination patterns of sand dune plants in Michigan and New Jersey, for which he received an M.S. in plant ecology from Michigan State University in 1957. It was another 13 years before he was able to complete his Ph.D. work, because of his heavy teaching load, many extracurricular interests, and a commitment to family duties (pers. comm., J. H. Beaman, 20 July 1993; R. K. Rabeler, 19 July 1993; Denise Birmingham, 10 June 1993).

His doctoral research, supported in part by a grant from the National Institutes of Health, was an exhaustive study of the systematics and ecology of the poison-ivies and the poison-oaks, species of the genus *Toxicodendron* (Anacardiaceae). Gillis became interested in the flora of the Bahamas when he conducted field research in the Bahama Islands, beginning in 1963, for this dissertation research (Anon., 1968; letter from R. A. Howard to L. Kass, 23 March 1993; Table 1). "He returned several times to the Bahamas for the specific purpose of studying the flora and collecting specimens for the Michigan State University Herbarium. He spent several weeks collecting on Rum Cay, one of the more remote islands in the Bahamas which had been little studied botanically previously" (Anon., 1968; Table 1). He had an extensive publication list before he completed his dissertation work (Gillis, 1970b). His Ph.D. was granted in 1970 by Michigan State University. In 1972, Gillis received the Jesse M. Greenman Award in recognition of the best published paper in plant systematics based on a doctoral dissertation (Gillis, 1971a–d; Stafleu, 1972).



Figure 1. William T. Gillis. Michigan State University Photographic Laboratory, Information Services. Negative #682043-1. Courtesy of J. H. Beaman.

A detailed biography of W. T. Gillis is currently in preparation (L. B. Kass, R. K. Rabeler, and W. H. Eshbaugh).

#### CONTINUED INTEREST IN THE BAHAMA FLORA

Gillis' interest in the flora of the Bahamas was solidified when, in 1968, he took a six-week Summer Seminar in Tropical Botany,

Table 1. Itineraries for W. T. Gillis' collections in the Bahamas, and the Turks and Caicos Islands, 1963–1978. All data were compiled on 21 July 1993 by L. B. Kass and R. E. Hunt from the field notebooks of W. T. Gillis, deposited at MSC.

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	1963
19–21 March	New Providence (5253); Eleuthera, Rock Sound (5254–5255); San Salvador (5256–5336).
22–24 March	New Providence (5337–5357).
	1966
15–18 March	New Providence (6074–6088); Andros (6089–6133); Abaco (6134–6183).
19–25 March	San Sal (6184–6224, 6301–6312); Rum Cay (6225–6300).
	1967
5–6 March	New Providence (6355–6370); Andros (6371–6414).
	1968
28–31 December	New Providence, Paradise Island (7299–7306); Abaco (7307–7422).
	1969
1–2 January	Abaco (7423–7452); New Providence (7453–7499).
31 March–1 April	Grand Bahama (7735–7868).
7–9 July	New Providence (8331–8395).
23 October	Grand Bahama, Freeport (8568–8509).
29–31 December	New Providence (8706–8712); San Salvador (8713–8763).
	1970
1–4 January	San Salvador (8798–8855); New Providence (8856–8864).
4 May	New Providence (9183–9207).
9–12 June	Exuma (9332–9382); Great Exuma (9383–9414).
19–26 April	New Providence (10595–10706); Acklins (10707–10730); Crooked Island (10731–10738).
	1972
28 February–4 March	Bimini (11275–11314).
3–4 July	Andros (11385–11403).
	1973
7–20 February	Mayaguana (11527–11623); Inagua (11648–11778).
21–26 February	Turks and Caicos: Grand Turk (11779–11796, 11850–11859); Pine Cay (11797–11832); North Caicos (11833–11849); Salt Cay (11860–11880).
13–15 November	New Providence (11889–11914).

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Table 1. Continued.

1974	
21–23 May	Great Ragged Island (11915–11928); Little Ragged Island (11929–11962); Exuma (11963–11974).
24–27 May	New Providence (11975–11995); South Andros (11996–12036, 12044–12050).
27 May–7 June	Inagua (12037–12043, 12051–12180).
9–19 June	Turks and Caicos: North Caicos (12181–12230); Middle Caicos (12248A–12272, 12282–12315); Grand Turk (12273–12281, 12316–12357).
1975	
1–6 April	Turks and Caicos: Providencials (12365–12378); West Caicos (12379–12472).
9–10 July	South Andros (12505–12534); Vicinity of Congo Town (12535–12565); Vicinity of Kemps Bay (12565A–12598).
1976	
1–3 January	New Providence (12788–12791); South Andros (12792–12820); Cay Sal (12821–12855).
27 February–6 March	Andros (12856–12906); South Andros (12907–12922); Green Cay (12923–12956); Exuma Chain (12957–12958); Little Farmers Cay (12959–12973); Exhuma (12974–13007).
6–9 March	Rum Cay (13008–13094).
9–14 March	Inagua (13095–13099); Little Inagua (13102–13153).
17–18 March	Acklins (13153–13173); Crooked Island (13174–13208).
21–24 March	Long Island (13209–13242); New Providence (13243).
1977	
11–14 June	Eleuthera (13753–13843).
1978	
28 March–4 April	New Providence (14390–14407); Turks and Caicos: East Caicos (14408–14495); South Caicos (14496–14498, 14514–14526); Grand Turk (14499–14513).

offered for the first time by Richard A. Howard of the Arnold Arboretum, Harvard University, Howard Teas of the University of Miami, and, P. Barry Tomlinson of the Fairchild Tropical Garden (FTG). This seminar was held at the Garden in Miami (Coral Gables), Florida, and jointly sponsored by the University of Miami and the FTG (Popenoe, 1968; Anon., 1968; Figure 2).



Figure 2. GROUP PICTURE OF SEMINAR IN TROPICAL BOTANY. Standing, left to right: Thomas Armentano, Dr. R. A. Howard, Robert Stewart, L. Ramos-Lendon, A. Gentry, S. Donachie, Kiat Tan, Dr. J. Popenoe, Dr. H. Teas, Dr. P. B. Tomlinson, R. Vagner. Squatting, left to right: W. T. Gillis, L. Pardue, Mrs. D. Smullen, Dr. I. J. McClurkin Jr., Miss E. Jackson, W. Kirk. Reprinted, with permission, from Fairchild Tropical Garden Bulletin 1968. 23: 5.

His research paper for that course was a study of some of the unusual genera represented in the living "Bahama Collection" at the Garden (letter from R. A. Howard to L. Kass, 3 Nov. 1992). This research project, a very supportive recommendation from Howard to John Popenoe, director of the Garden, as well as Gillis' exhaustive plant systematic doctoral dissertation, qualified him for the position of taxonomist at FTG, which he began on 1 October 1968 (letter from Gillis to H. E. Moore, Jr., 10 Oct. 1968; Anon., 1968; Stafleu, 1969; letter from R. A. Howard to L. Kass, 3 Nov. 1992).

In 1969, the FTG herbarium "became active" (Gillis, 1969) with the appointment of William T. Gillis as curator, allowing for its expansion in a new direction—that of plants of the Bahama Islands (Gillis, 1969; Stafleu, 1969). In the newsletter of the Botanical Society of America, Gillis (1972) published a comprehensive summary of the importance of the FTG, its staff, gardens, and herbarium and described the significance of the Garden's Bahamian collection. While on the staff at FTG, Gillis was made

Adjunct Assistant Professor in the Department of Biology at the University of Miami, Coral Gables, Florida. This appointment continued through 1974.

While he was the taxonomist and curator at FTG, Gillis lived in a cottage at the Kampong (Sweeney, 1969), former home of David Fairchild, for whom the FTG was named. Fairchild's home had been purchased in 1963 by Edward Cleaveland and Catherine Hauberg Sweeney, who gave the property, in 1984, to the Pacific Tropical Botanical Garden (Schokman, 1985; name changed to National Tropical Botanical Garden in 1988). Catherine Sweeney, a member of the FTG Board of Trustees and a patron of the Garden, supported Gillis financially in many of his scientific endeavors (Anon., 1970). Gillis contributed to the newsletter *Kampong Notes* between 1969 and 1979.

Under the auspices of the FTG, between 1969 and 1972, Gillis made collecting trips to the Bahama Islands (Table 1). In March/April 1969, he visited Grand Bahama to help a researcher "determine which plants are being made primary food source of several bird species" (letter from Gillis to H. E. Moore, Jr., 20 March 1969). On returning from this trip he wrote to H. E. Moore, Jr., director of the L. H. Bailey Hortorium (BH) at Cornell University (7 April 1969), that his Bahama trip was most worthwhile. He wrote that he had collected about "130 numbers, stripping the countryside as is my wont" and added that he had no place to put the specimens until new cases arrived.

In December 1969, he visited San Salvador "to collect herbarium specimens to record the plants living on the island, part of a larger project in rewriting the flora of the Bahama Islands" (Gillis, 1970a). He reported that this trip had a "thread of urgency," as "75% of the island" had been purchased for development and he feared that "many good collecting sites" would soon disappear. He hypothesized that there had been little change in the vegetation on the island since the early part of the century, when David Fairchild and P. H. Dorsett had visited that part of the Bahamas. He described the island and compared it with what Christopher Columbus may have observed in 1492. He reported that "many of the plants which Columbus described are still found on San Salvador," and specimens of these are in the FTG herbarium. On that same trip, at French Bay on the southern part of San Salvador, Gillis (1970a) reported that he had collected a specimen of *Coccothrinax* [*argentata*] (letter from Gillis to H. E.

Moore, Jr., 27 Jan. 1970)] that was not silvery on the lower leaf surface. Gillis sent the plant to Robert W. Read, who identified it as *C. inaguensis* R. W. Read (Gillis, 1970a; Read, 1966). This was the first record of the plant from San Salvador, and seeds of the palm were brought back to FTG to grow. Specimen labels of *Wedelia behamensis* (seen at BH/CU in 1991, on loan from FTG, collection numbers 8759 and 8778) also collected by Gillis on San Salvador in 1969 suggest that he had a total collection of over 8000 plants by that time.

While Gillis was engaged in the Summer Seminar in Miami, just prior to his employment at FTG, Howard suggested that he "apply for the post [of taxonomist] at FTG and together [they] would prepare a Bahama Flora" (Gillis, no date; Gillis, 1969; R. A. Howard, pers. comm., 4 Aug. 1993). After his appointment as taxonomist Gillis wrote to Howard that George R. Proctor of the Science Museum of Jamaica, had been approached by the Bahamian government "about writing a new flora" with the possibility of the government underwriting part of it and that "he was willing to collaborate" (letter from Gillis to R. H. Howard, 31 July 1969). In December 1970, Gillis, Proctor, and Howard submitted a proposal to the National Science Foundation (NSF), proposing to prepare "a Manual and a Flora of the Bahama Vascular Plants" (Anon., 1970; Gillis, 1970b). Gillis, as principal investigator, requested support for five years and noted that "A promise of \$17,000 toward publication was made by the Ministry of Agriculture and Fisheries, government of the Bahama Islands" (Anon., 1970; letter from O. S. Russel, Permanent Secretary to Gillis, 21 Oct. 1970; Gillis, 1970b).

On 6 August 1971, Gillis wrote to his collaborators, Howard and Proctor, that he had received a letter from NSF (letter from H. J. Carlson to Gillis, no date) that the grant proposal had not been funded. This rejection did not weaken his determination to continue his study of the Bahama flora. In that same letter to his colleagues, he solicited advice from Howard and Proctor on how to proceed: "Is it desirable to re-write the proposal . . . ? . . . Should we try another granting agency?" Howard responded with suggestions for revisions to the NSF. He also suggested applying to Sigma Xi or the American Philosophical Society, the Stanley Smith Trust, and "Archbold" (letter from R. A. Howard to Gillis, 9 Aug. 1971).



It is possible that the rejection of this grant proposal was a catalyst in the development of Gillis' unpleasant relationship with the management of the Fairchild Garden, but probably the main factor leading to his abrupt dismissal on 21 April 1972 (memo from J. Popenoe to Gillis, 21 April 1972) was simply a result of personality dissonance ("differed . . . on professionalism" and "incompatibility," United States Civil Service Commission, Form 171, W. T. Gillis, 7 July 1973) between Gillis and J. Popenoe, the director of the Garden. At any rate, Gillis vowed he would continue with and complete his "Flora." Popenoe, however, insisted that the project belonged to the Fairchild Tropical Garden, and he proceeded to recruit Donovan S. Correll to write the "Bahama Flora." Thus two rival projects, covering the same territory, proceeded simultaneously, leading eventually to considerable hostility between the principal investigators (G. R. Proctor, pers. comm., 4 June 1993).

While Correll was Program Director for Systematic Biology at the NSF (July 1971–July 1973), Harve J. Carlson, Divisional Director, Biological and Medical Sciences, endorsed a request from Correll "for permission to submit a research proposal in August 1973" to the NSF, immediately following his "tour of duty with the National Science Foundation at the end of July 1973" (letter from H. J. Carlson to the Director via the Deputy Assistant Director for Research, 11 Aug. 1972). Permission was granted by H. Guyford Stever, Director, NSF, for Correll to submit a proposal immediately upon the termination of his appointment (Correll, 1973). Correll was appointed taxonomist at FTG on 1 September 1973 (Anon., 1973; Correll, 1973). Correll's proposal (No. P4B0945) titled "Illustrated Vascular Flora of the Bahama Islands," submitted to NSF (Correll, 1973), dated 1 October 1973, was granted by NSF's Program in Systematic Biology, to begin on 15 November 1973, for "support of the project entitled 'Vascular Flora of the Bahama Islands,' . . . under direction of Donovan S. Correll" (Correll, 1973; letter from G. L. Ellis, Grants officer, to H. E. Kendall, President, FTG, no date, stamped 6 Dec. 1973; NSF Project Summary, NSF Grant No. GB-41190X, no date, stamped 6 Dec. 1973; Correll and Correll, 1982; letters from R. A. Howard to L. Kass, 3 Nov. 1992, and 23 March 1993). Donovan S. Correll and Helen B. Correll began their field collecting in the Bahamas in November 1973, and terminated col-

lecting in November 1980 (Correll and Correll, 1982). The culmination of their work was the publication of the *Flora of the Bahama Archipelago* in 1982.

In 1973, Gillis wrote to Correll offering to "assist [him] in any way that [he could] as [he] assum[ed his] post at Fairchild" (letter from Gillis to D. S. Correll, 7 March 1973). In that same letter Gillis indicated to Correll that Howard, Proctor, and he were working on a "field guide and flora of the Bahama Islands." Even after leaving FTG, Gillis continued to deposit specimens in its herbarium, specimens he had collected while taxonomist there (letters from Gillis to D. S. Correll, 9 Jan., 28 Feb., 14 July, 7 Aug. 1974; 12 July, 4 Nov. 1975; 6 April 1977).

RESEARCH FELLOW AT THE ARNOLD ARBORETUM,  
HARVARD UNIVERSITY, AND THE BAHAMA FLORA

In 1972, Gillis went to the Arnold Arboretum at Harvard on a Mercer Research Fellowship to work full time on the Bahama flora (letter from H. E. Moore, Jr. to Gillis, 12 June 1972; letter from Gillis to H. E. Moore, Jr., 11 April 1973). During this two-year period (1972-74), while a fellow at the Arnold Arboretum, Gillis made many visits to the Bahamas (Table 1). His collections and investigations during this short time led to 13 scientific publications over five years (Gillis, 1974a, 1974b, 1974c, 1976a, 1976b; Gillis and Proctor, 1974, 1975a, 1975b; Gillis and Stearn, 1974; Gillis et al., 1973, 1975a, 1975b; Mears and Gillis, 1977). His research and field trips while he was at Harvard were supported by a grant to the Arnold Arboretum from an anonymous donor interested in the Bahama flora and by a grant from the National Geographic Society (Beaman, 1982). After leaving Harvard in 1974, he continued to collect data and publish on the Bahama flora until his death in 1979.

In a 1973 publication, Gillis, Howard, and Proctor recognized 81 taxa of vascular plants as additions to the "Bahama flora since the publication of Britton and Millspaugh's work (1920)." In that publication they presented a compilation of additional vascular plants, growing without cultivation, in the Bahama Islands, including the Turks and Caicos group, while they were "in the process of preparing a new vascular flora of the Bahama Islands" (Gillis et al., 1973). Many of these additions to the flora were reported for the first time and were based on personal collections,

new collections made available to them, and reports from the literature (Gillis et al., 1973). The principal works they cited were Howard (1950), Howard and Dunbar (1964), and Lewis (1971). Herbarium specimens for plants reported for the first time in their paper were, unless otherwise designated, deposited at FTG (Gillis and John Popenoe specimens), the New York Botanical Garden (NY, Howard specimens), and the Institute of Jamaica (IJ, Proctor material), with duplicates at the Arnold Arboretum (A). Of the 81 additions to the flora, 24 specimens comprising 19 new records were vouchered by Gillis, two of these from San Salvador. Nineteen of Gillis' 24 voucher specimens were recently located at the FTG herbarium (L. Kass, 7–10 June 1993).

One year later, Gillis (1974a) again reported that he was "working in collaboration with Richard A. Howard of the Arnold Arboretum and George R. Proctor of the Institute of Jamaica towards a revision of Britton and Millspaugh's 'Bahama Flora,' published first in 1920 and reprinted without changes in 1962." In this same publication Gillis "offers updated annotations on the correct scientific names to be applied to the species listed by Britton and Millspaugh whose work was completed under the provisions of the American Code of Botanical Nomenclature." He encouraged other researchers to use his list and to report changes or additions to him. He referred the reader to other lists of nomenclatural corrections for island floras in the Caribbean and emphasized that the reasons for the changes of names are not always explained, so that investigators must reinvestigate each and every problem. In this study, however, Gillis (1974a) provided explanations for all name changes he had made. When name changes were made by others, he cited the publication on which that information was based. The study reported name changes for species in 85 vascular plant families. For ease of reference he followed the order of Britton and Millspaugh's *Bahama Flora*, with citations to the page numbers on which species were found. Revised keys to a few of the species were also included.

With the intent of continuing to revise *The Bahama Flora*, in collaboration with Proctor and Howard, Gillis (1974b) examined much of the material available to Britton and Millspaugh, especially type specimens, by visiting herbaria in both the United States and in Europe. Using this research, Gillis (1974b) presented "a union of species resulting from a broader approach to species concepts than employed" by Britton and Millspaugh (Gillis and

Proctor, 1975a). Gillis believed that many of Britton and Millspaugh's "species" were phantoms. These phantoms, he explained, were not really species at all because they were based on minor variations among specimens. Because Britton and Millspaugh's *Bahama Flora* recorded so many new "species," 12 percent of their flora was reported to be endemic. Gillis (1974b) argued that the geologic time span since the island flora were established was too short for this amount of endemism to have developed. Because the Bahamas were surrounded on three sides by nearby land masses, which had contributed most of the fauna and flora, it appeared to him that those species labeled "endemic" in *The Bahama Flora* of Britton and Millspaugh would be found in other neighboring floras, under earlier names, if one were to look for them. He presented evidence on why 28 species names in *The Bahama Flora* considered to be endemic should be reduced to species that are also present in Cuba, Hispaniola, and Florida. Correll and Correll's *Flora* (1982) did not include many of the changes Gillis (1974b) suggested, and thus kept the number of apparent endemics in the Bahamas high. Gillis' lower number of endemics is probably more realistic.

APPOINTMENT AS ASSISTANT PROFESSOR AT HOPE  
COLLEGE AND CONTINUED PUBLICATIONS ON  
THE BAHAMA FLORA

In 1974, Gillis was appointed Visiting Assistant Professor at Hope College in Holland, Michigan (letter from Gillis to H. E. Moore, Jr., 20 Aug. 1974) and continued to work on revisions of *The Bahama Flora*. He also taught summer classes at the Kellogg Biological Station and "May term" classes in Tropical Botany at the Kampong and environs (letter from Gillis to D. S. Correll, 14 April 1975). For his course at the Kampong, he drafted "a textbook of tropical botany" that he hoped to publish with "Drs. Richard A. Howard and P. Barry Tomlinson of Harvard University, [his] mentors in tropical botany" (Gillis, unpublished 'Disclaimer' from "a textbook of tropical botany," May 1976).

Continuing with studies of the Bahama flora, Gillis and Stearn (1974) recommended a name change for *Mimosa latisiliqua* L. based on their investigation of Linnaean materials. They interpreted the International Code of Botanical Nomenclature as requiring a Linnaean binomial to be essentially the selection of "the

specimen or illustration from which Linnaeus obtained the information embodied in his diagnostic phrase-name" (Blunt and Stearn, 1971, as cited by Gillis and Stearn, 1974). Their evidence led them to conclude that the correct name should be *Leucaena latisiliqua* (L.) Gillis, *comb. nov.*, which they considered a synonym of *Leucaena leucocephala* (Lam.) de Wit. De Wit (1975) rejected their argument and presented evidence for retaining his previously corrected name (De Wit, 1961). Correll and Correll (1982) adopted de Wit's combination. Disagreement remains as to which name should apply.

While collecting in the southern Bahama Islands in 1973, Gillis and Proctor (1974) located a specimen of *Caesalpinia* (*Guilandina* of Britton and Millspaugh) that they believed was "distinct from others indigenous to the Bahamas." They described this as a new species and named it *Caesalpinia murifruca* Gillis & Proctor. It was included by the Corrells in their *Flora* (1982), who noted that it probably should be considered a variant of *C. ovalifolia*.

While Gillis was collecting plants and revising plant names for preparation of a new vascular flora of the Bahama Islands, he was also attempting to understand the distribution patterns of organisms related to the geological and natural history of the Islands (Gillis et al., 1975a; Gillis, 1977c), and had compiled a bibliography for such a purpose. During the same time, Roger Byrne and Wyman Harrison had independently compiled a bibliography for the Bahamas. They therefore proposed to cooperate, pool their resources, and publish their results together. The result was the publication of the *Bibliography of the Natural History of the Bahama Islands* in 1975. This work includes six of Gillis' publications through 1974, and is one of two Gillis publications cited in the "Selected References" of Correll and Correll (1982). From the introduction to this *Bibliography* we learned that Gillis had recently contributed a monthly column on native plants to *Conch News*, a weekly newspaper of the Turks and Caicos Islands.

Another finding from Gillis' field studies in the southeastern Bahamas in 1973 through 1976 was the discovery of an indigenous population of *Roystonea* on Little Inagua (Gillis et al., 1975b; Gillis, 1977a, 1977b, 1977e). Gillis et al. (1975b) reported that this palm was known to Britton and Millspaugh in the Bahamas "only as a planted tree." Gillis, Proctor, Avery, and Proctor's field assistant Errol Scott observed these palms while flying over the islands on their way to Grand Turk (G. R. Proctor, per. comm.,

4 June 1993). The palms were restricted to sinkholes and were growing with *Sabal*. From fruit specimens collected by Donald Buden in 1975, Robert Read determined the palms to be *Roystonea*. In 1976, Gillis, serving as botanist, along with Harry Clench (entomologist), and Arthur Bianculli (herpetologist), hiked back from the coast of Little Inagua Island to visit these royal palms. They were members of an expedition led by Mary Clench (ornithologist) from the Carnegie Museum of Natural History "to locate the endangered Kirtland's warbler" in the Bahamas (Anon., 1976; Gillis, 1977a, 1977b, 1977e). Gillis reported that the palms appeared to be royals of Hispaniolan affinity, *Roystonea hispaniolana* Bailey. This identification was confirmed by Read (letter from R. W. Read to Gillis, 17 Jan. 1977). This 1976 expedition was sponsored by the World Wildlife Fund and the M. Graham Netting Fund of the Carnegie Museum.

Gillis and Proctor (1975a) published a second compilation of additions and corrections to Britton and Millspaugh's *Bahama Flora*, acknowledging 1974 reports of new species by botanical investigators D. S. Correll, and S. R. Hill. They deposited herbarium voucher specimens at A, the Gray Herbarium (GA), and IJ. They reported 20 plants new to the Bahama flora, 9 of which were vouchered by Gillis, and they explained the change of name for an additional 22 species, again reducing the number of alleged endemics in the Bahamas. Five of the 22 name changes were corrections to names in Gillis' (1974a) previous publication for name changes in the Bahama flora.

During the years 1974–77, in his quest for accurate application of scientific names in revising *The Bahama Flora* of Britton and Millspaugh, Gillis investigated many Bahama species. Gillis (1974c) investigated *Spermacoce confusa* Rendle because he believed that the name had not been validly published. Howard (1989), however, later reported that investigations by Nicolson (1977, *J. Arnold Arb.* 58: 445–447) revealed that previously published Latin descriptions had been published for this species name. Ward and Gillis (1975) examined *Sisyrinchium* and thanked D. S. Correll, among others, for assistance in locating and lending specimens for study. Their revision was incorporated in *Flora of the Bahama Archipelago* (Correll and Correll, 1982). Gillis additionally investigated *Polygala* (Gillis, 1975), *Agave* (Gillis, 1976a), and *Pluchea* (Gillis, 1977f), but these treatments were not cited by the Corrells (1982). The mistletoes *Dendropemon*

and *Phoradendron* (Gillis, 1976b), were investigated, but the Corrells (1982) did not accept Gillis' treatment contributing to their recognizing a high number of endemics for the Bahama flora. Genera in the subfamily Gomphrenoideae of the family Amaranthaceae (Mears and Gillis, 1977), were also studied; and Correll and Correll (1982) incorporated some of these name changes.

During this same period, Gillis and Proctor (1975b) made a collection of wood samples from 37 specimens of Bahama trees and shrubs taken from 5 islands in the Bahamas. They deposited these specimens in the Wood Laboratory at Harvard University, along with herbarium voucher specimens at A and IJ. Many of these specimens had not been placed on permanent file or photographed before. The nomenclature for the species followed Britton and Millspaugh (1920), as modified by Gillis (1974a, 1974b).

Gillis' (1976d) third publication, in collaboration (but not coauthorship) with Proctor, on additions and name changes to the Bahama flora, involved 34 name changes and added 9 species not previously reported from the islands. The Corrells (1982) incorporated many of these changes reported by Gillis in this work. For one of the names they did not change, *Cephalocereus Millspaughii*, they noted "the species are separated on tenuous, recondite characters and probably should be combined (Correll and Correll, 1982, p. 1004); for these reasons Gillis had already combined them and changed the name in 1976. One of the additions reported by Gillis in 1976d was collected on San Salvador Island by Robert R. Smith. The new plant, *Aechmea lingulata* L. Baker, represented both a new species and a new genus to the Bahama flora. The voucher specimen was deposited in the Hoystadt Herbarium of Hartwick College (HHH). Gillis' study was supported from travel funds granted by Hope College and the Society of Sigma Xi.

Afforded the opportunity to visit Cay Sal in 1976, Gillis (1976c) specifically investigated the Compositae because he had seen and mapped distributions of all species (Percy) Wilson had collected in 1907 for Britton and Millspaugh's *Bahama Flora* project, and Gillis knew that few members of this family had been collected on Cay Sal prior to 1976. Gillis observed four ubiquitous species of composites found on Cay Sal and the western Bahamas. He also reported finding Red Mangrove, not previously recorded there. He noted the uncommon prevalence of *Cynanchum bahamense*, a milkweed vine (Asclepiadaceae), as fitting a pattern

known for insular biotas, exploiting the available niche, and being "phenomenally abundant" (Gillis, 1976c).

What intrigued him more, however, were the plants that he would *not* find on the island. He listed 18 species of common plants found throughout the Bahamas that he expected to find but were absent from Cay Sal. He attributed the island's depauperate flora to its size and distance from any other island source, making it "a small target for any successful invasion of seeds from Cuba, Florida, the rest of the Bahamas, or . . . even more distant lands" (Gillis, 1976c). He deposited plants collected on Cay Sal at IJ, A, and the Botanical Garden in Nassau.

In 1977d, Gillis contributed a chapter titled "Biogeography and Vegetation" to the Land Resources Study in the Bahamas, an investigation into the land and water resources of the Bahama Islands. The study was carried out by the Bahamas Land and Resource Survey between 1969 and 1975. The section Gillis contributed provided a setting for the survey's vegetation studies. A summary of the biogeography is presented at the end of the chapter; one of his conclusions is an important warning that the effect of human interference had been to reduce the height of the woodland and decrease the number of species. He cautioned potential developers, who might undertake haphazard clearing, of the slow regeneration of vegetation cleared for farming. He included four photographs of the vegetation on Abaco, Inagua, Eleuthera and North Andros.

While visiting herbaria for his own studies, Gillis generously offered his time to other investigators. For example, a study proposing the conservation of the generic name *Picrodendron* Grisebach, endemic to the West Indies, was supported by the efforts of Gillis "who did much of the herbarium work in Europe" (Hayden and Reveal, 1980) and who supplied specimens for an anatomical study by W. J. Hayden (1977). Although the proposed conserved name was not adopted by Correll and Correll (1982), the proposal to conserve (No. 4134) was accepted in 1984 (Nicolson, 1984).

APPOINTMENT AS ASSISTANT PROFESSOR AT  
MICHIGAN STATE UNIVERSITY, AND ASSOCIATION WITH  
THE KELLOGG BIOLOGICAL STATION

On 1 September 1977, Gillis was appointed Assistant Professor in the Natural Science Department at Michigan State University,



East Lansing, with joint appointments in the Department of Botany and Plant Pathology and the Kellogg Biological Station (letter from J. H. Beaman to W. H. Eshbaugh, 11 May 1993; Cowan, 1979). He was also awarded staff privileges at the Field Museum of Natural History, Chicago. Although he had been advised of a health problem and warned of the need for urgent corrective surgery in January 1979, he chose to teach two scheduled summer courses before surgery, rather than disappoint his students (R. K. Rabeler, pers. comm., 21 June, 19 July 1993). Unfortunately, this dedication to his students led to a fatal heart attack on 20 June 1979, while he was teaching at the Kellogg Biological Station (Cowan, 1979).

At the time of his death, Gillis was engaged in a number of research projects concerning the Bahama flora. One of these projects, in collaboration with Proctor, was a revision of the genus *Caesalpinia*. The investigation was not published, but Proctor (1982) reported their unpublished conclusions for Jamaican species.

A second project, in collaboration with Howard, involved an investigation of 15 names from the *Prodromus Plantarum Indiae Occidentalis* (1825) of William Hamilton (1783–1856), names not included in *Index Kewensis* or its supplements (letter from Gillis to R. A. Howard, 27 June 1976; Howard et al., 1981). This work was relevant to revisions of both the *Bahama Flora* and the *Flora of the Lesser Antilles*, since “names not having been indexed in I. K.” had been used again (letter from Gillis to R. A. Howard, 27 June 1976).

Gillis and Correll never met “face to face” (letter from Gillis to D. S. Correll, 15 June 1977). Although some members of the FTG staff were led to believe that Correll tried to contact Gillis about collaborating on investigations of Bahama flora without success and that he tried to locate Gillis’ specimens and notes after his death, again unsuccessfully (records of phone conversations and letters to L. B. Kass archived at ECH), correspondence between the two men suggest this is not the case. Between the years 1973 and 1977, Gillis attempted to resolve the apparent conflict between them (letters from Gillis to D. S. Correll, 7 March 1973; 14 April, 12 July, 25 August, 4 Nov. 1975; 15 May 1976; 15 June 1977). Correll’s existing correspondence to Gillis, however, did not indicate that he responded to these overtures (letters from D. S. Correll to Gillis, 19 April, 16 July 1975; 20 June 1977).

Gillis' unpublished research materials are archived at the Michigan State University Beal-Darlington Herbarium (MSC; letters from J. H. Beaman to W. H. Eshbaugh, 7 May, and 11 May 1993). The distribution maps Gillis referred to in his paper on Cay Sal (1976c) were accessible to Eshbaugh, who published Gillis' distributions for *Capsicum annuum* L. var. *aviculare* (Dierb.) D'Arcy & Eshbaugh and *Scaevola plumieri* (L.) Vahl in the Bahamas (Eshbaugh, 1987; Eshbaugh and Wilson, 1986). In July 1993, Kass examined the entire three volumes of distribution maps that Gillis (unpubl.) prepared for the Bahamas. Kass also located Gillis' correspondence, research materials, and field notebooks for his work on the flora of the Bahamas (L. B. Kass visit to MSC, 20–21 July 1993).

#### SUMMARY AND CONCLUSIONS

William T. Gillis, together with George R. Proctor and Richard A. Howard, intended to publish a revision of *The Bahama Flora* of Britton and Millspaugh. To this end Gillis spent much time investigating the flora in the field, visiting herbaria around the world, and searching the literature. Gillis' publications make clear that he was a fair and fastidious researcher who carefully explained and documented his conclusions and always credited those who did the work. Howard, former director of the Arnold Arboretum, wrote that Gillis' "taxonomic judgement was quite good [and that] he could use a library to perfection" (letter from R. A. Howard to L. Kass, 3 Nov. 1992). Unfortunately, because of his untimely death at the age of 45 his goal was not achieved. Sadly, the brief notice of his death to the scientific community did not mention his work in the Bahamas (Cowan, 1979). Scholars who wish to examine Gillis' research materials will find them available at MSC.

Correll and Correll (1982, p. 1609) state in the preface to their "Selected References" that they included only "revisions, monographs, and pertinent Floras that have been useful to [them], and can be useful to others. Numerous papers, including [their] own, have been published that give new additions to the flora, nomenclatural changes, and other minor details. These are not included." This was an unfortunate decision, for it deprives users of their *Flora* ready reference to, and a complete appreciation of,

the work published prior to 1982. In particular, many of Gillis' papers are not included.

The authors of this paper (on the basis of twenty years work with the flora of the Bahamas) have found that the work of Gillis and his collaborators has added significantly to our understanding of the flora of the Bahamas. We anticipate that their contributions will now be recognized and appreciated by future scholars of the Bahama flora.

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#### DEDICATION

This paper is dedicated to Dr. Catherine H. Sweeney, for her interest in the Bahama flora.

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